

Application Serial No. 10/663,077
Reply to Office Action of October 30, 2006

PATENT
Docket: CU-6013

REMARKS

In the Office Action, dated October 30, 2006, the Examiner states that Claims 1-3 and 5-15 are pending and Claims 1-3 and 6-15 are rejected. By the present Amendment, Applicant amends claims 1, 5, 8 and 9 and cancels claims 3, 6 and 7.

In the Office Action, Claims 1-3, 5-7 and 10-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Edwards (WO 99/52105) in view of Nebashi et al (U.S. 6,120,870) and Takahashi et al. (JP 02-010536). Claims 1-3 and 5-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Edwards in view of Nebashi et al and Takahashi et al., and in further view of Parker et al. (U.S. 5,327,825). Claims 1-3, 5-7 and 10-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Webster et al. (U.S. 4,892,385) in view of Martens (U.S. 4,576,850). Claims 1-3 and 5-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Webster et al. in view of Martens, and in further view of Parker et al. In the Office Action, Claims 1-3 and 5-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Webster et al. in view of Martens, and in further view of Parker et al, and in further view of Yoshitake et al. (U.S. 5,991,078) in view of Sakuri et al. (U.S. 3,911,479).

The Applicant has cancelled Claims 3, 6 and 7 and has incorporated the features into amended independent Claims 1 and 5. The Applicant believes this amendment overcomes the rejections to independent Claim 1 and 5, and any claim that depends from amended Claims 1 and 5. Thus, the Applicant believes all the claims should be in condition for allowance. The amendments were made to more specifically claim that the optical diffractive structure of the present invention aims for a visual effect, that the emboss method can effectively duplicate a visually bright optical diffractive structure, and that the ionizing radiation is performed after peeling off a duplication plate material or while forming by embossing (see p. 32 of the specification).

The present invention claims an optical diffractive structure which is different from the optical disc surface disclosed in the cited references. The present invention is in the field of an optical diffractive structure utilizing visual design or visual discrimination. In contrast, Edward, Nebashi et al., and Takahashi et al. disclose

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Docket: CU-6013

inventions in the field related to optical discs. Specifically, each of the cited references discloses a concave-convex shape of a disc surface which includes grooves and improves recording density or the like. Grooves of the optical disc surface comprise an optical diffractive structure of a single area, which are consecutively extended concentrically or spirally with a disc center as a basing point and have a regular pitch. None of the references Edward, Nebashi et al., or Takahashi et al. disclose a way to efficiently mass produce a visually bright optical diffractive structure. Therefore, it would not be obvious to one skilled in the art to take a design in the field of optical discs and apply it to the field of visual effect to efficiently mass produce a visually bright optical diffractive structure.

Also, in the present application, the embossing method is claimed as a technique for a duplication process. The references Edward, Nebashi et al., do not disclose an embossing method as a duplication method. Nebashi et al. and Takahashi et al. disclose 2P methods, but that method is different from the embossing method claimed in the present invention. Takahashi et al. discloses an embossing method, but does not consider an embossing method to be a preferable method, and distinguishes it from the "favorable" 2P method.

In a 2P method, surface configuration of an optical diffractive structure can be accurately duplicated, thus, if a visually bright master is used, a duplication product can be also bright. However, the 2P method is not suitable for mass production. In contrast, the embossing method is suitable for mass production, but cannot accurately duplicate surface configuration of an optical diffractive structure. Thus, in the embossing method, when a visually bright master is used, a bright duplication product cannot be always obtained. The problems of such an embossing method are explained in FIGS. 4A, 4B, 4C and p.18, line 1 to p. 19, line 4 of the specification of the present application. The embossing method of the present invention attains efficient production of visually bright optical diffractive structure by solving the problems that greatly hinder the embossing method. This embossing method is different from the one disclosed in Takahashi et al.

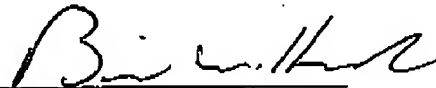
Moreover, the rejections based on the cited references Martens et al., Webster et al., Parker et al., Yoshitake et al, and Sakuri et al. should be overcome by the current

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Docket: CU-6013Application Serial No. 10/663,077
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amendments to Claims 1 and 5. As amended, Claims 1 and 5 claim that the ionizing radiation is performed after peeling off a duplication plate material or while forming by embossing. Webster et al. discloses a pitch interval desirable for a relief pattern of a final duplicated product; however, it does not disclose a method for efficiently mass producing a relief pattern having such an ideal pitch interval by an embossing process. Martens et al. discloses a 2P method, which is unlike the embossing method of the present invention. Therefore, one skilled in the art would not combine Webster et al. and Martens et al. and find obvious that which is claimed in the present invention which is a method for efficiently mass producing a visually bright optical diffractive structure by an embossing process. Furthermore, one skilled in the art would not combine Parker et al. with Webster et al. and Marten et al., and find obvious that which is claimed in the present invention because Parker et al. does not disclose the embossing method of the present invention. Likewise, Yoshitake et al. and Sakuri et al. do not suggest or teach the embossing method claimed in the present invention.

In light of the foregoing response, all the outstanding rejections are considered overcome. Applicant respectfully submits that this application should now be in condition for allowance and respectfully requests favorable consideration.

Respectfully submitted,

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Date

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